REMARKS/ARGUMENTS

Petition is hereby made under the provisions of 37 CFR 1.136(a) for an extension of three months of the period for response to the Office Action. The prescribed fee should be charged to our Deposit Account No. 192253 and our Deposit Account Order Form is enclosed.

The Examiner indicated that applicants claim to priority had not been perfected. The disclosure on page 1 has been amended to refer to the 371 status of this application from PCT/CA98/00697 and the relationship of such PCT filing to Application No. 08/826,442 filed July 18, 1997. It is submitted that the application now complies with 35 USC 120 and 37 CFR 1.78.

The Examiner indicates that the IDS did not fully comply with the requirements of 37 CFR 1.98 on the basis that, since the title of each article was missing, the applicant did not properly cite the journal article. The Examiner indicated, however, that the references have been considered by the Examiner, but, in order to have the journal article initialled and dated on the PTO-1449, a new PTO-1449 citing the journal articles must be filed with the response to the Office Action. Such a PTO-1449 is enclosed herewith. It is submitted that the requirements of 37 CFR 1.98 have been met.

The Examiner withdrew claims 43 to 48 from further prosecution as being directed to a non-elected invention. Claims 43 to 48 have been deleted from the application, such deletion being made without prejudice to the applicants right to file a divisional or continuation application directed to the deleted claims.

The Examiner rejected claims 1 to 29, 36 to 38 and 40 to 42 under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this regard, the Examiner objects to the recitation of a second nucleotide sequence located between the first nucleotide sequence and the promoter. The Examiner admits that:

> "The specification provides sufficient description of a species of an immunogenic composition comprising a nucleotide sequence encoding a RSV G protein or a RSV G prot in fragment, a promoter sequence operatively linked to said first nucleotide sequenc and a second

> nucleotide sequence located encoding the human cytomegalovirus Intron A betw n said first nucleotide sequence and said promoter."
>
> and
>
> "The specification provides sufficient description of a species of an immunoprotection enhancing sequence encoding the human cytomegalovirus Intron A between said first nucleotide sequence and said promoter."

However, claims 11, 25, 38, specifically directed to the second nucleotide sequence being human cytomegalovirus Intron A, are included in the rejection. In any event, the subject matter of such claim has been introduced into the respective independent claims 1, 15 and 30 and claim 40 also similarly amended.

In addition, the use of the specific plasmids pXL5 and pXL6, which incorporate that sequence, in claims 13, 14, 27, 28 and 42 also are included in the rejection. However, claim 37 is not so included. Having regard to the Examiner's admissoins, it is submitted that the rejection cannot be sustained with respect to the subject matter of claims 1, 13, 14, 25, 27, 28, 38 and 42.

Accordingly, it is submitted that claims 1 to 28, 36 to 38 and 40 to 42, insofar as they remain in the application and in their amended form, comply with the requirements of 35 USC 112, first paragraph, with respect to written description and hence the rejection should be withdrawn.

The Examiner rejected claims 1 to 42 under 35 USC 112, first paragraph, on the basis that the specification does not enable any person skilled in the art to which it pertains or with which it is most nearly connected to make and/or use the invention commensurate in scope with the claims.

In the Office Action, the Examiner admits that the specification is enabling for:

> 1) An immunogenic composition comprising a vector that will not replicate, wherein the vector comprises: a first nucleotide sequence encoding a respiratory syncytial virus (RSV) G protein or a RSV G protein fragment, a CMV promoter sequence operatively linked to said first nucleotide sequence for expression of said RSV G protein, a second nucleotide sequence encoding the human cytomegalovirus Intron A; 2) A method of stimulating an immun response in a mammal using an effective amount of the composition of 1; 3) A method comprising isolating gene ncoding a RSV G protein or a RSV G fragment, operatively linked said g ne to at least one control

sequence to produce a vector that will be replicate in mammal; 4) Administering composition of 3 to a mammal, so as to stimulate an immune response in said mammal."

As noted above, claims 13, 14, 27, 28, 39 and 42 are specifically described to plasmids pXL5 and pXL6 which incorporate all the elements the Examiner considers enabled and hence it is not known why such claims are included in the rejection.

Claims 1, 15, 30 and 40 have been amended to recite the subject matter that Examiner considers to be enabled, in particular the identity of the promoter and the second nucleotide sequence. These claims also have been amended to be internally consistent with respect to the RSV G fragment.

Accordingly, it is submitted that claims 1 to 42, insofar as they remain in the application and in their amended form, are fully enabled to the full scope of the claims and hence the rejection thereof under 35 USC 112, first paragraph, should be withdrawn.

The Examiner rejected claims 1, 3, 15, 17, 36 to 38 and 40 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In this regard, the Examiner considered that claims 1, 15 and 40 are vague and indefinite with reference to the term "a second nucleotide sequence". As noted above, the second nucleotide sequence is now defined as encoding the human cytomegalovirus Intron A. Having regard thereto, it is submitted that such claims can no longer be considered indefinite in this respect.

The Examiner considered claims 3 and 17 to be vague and indefinite with reference to the nucleotide sequence. In this regard, claims 3 and 17 have been amended to refer to the first nucleotide sequence. It is submitted that these claims can no longer be considered indefinite in this respect.

The Examiner considered claims 36 to 38 to be vague and indefinite with respect to the term "immunoprotection enhancing sequence". In this regard, the term has been defined in encoding the human cytomegalovirus Intron A. It is submitted that these claims can no longer be considered indefinit in this respect.

Having regard to the changes made to the claims, it is submitted that claims 1, 3, 15, 17, 36 to 38 and 40, in their amended form, can no longer be considered indefinite and hence the rejection thereof under 35 USC 112, second paragraph, should be withdrawn.

The Examiner rejected claims 1 to 2, 6, 15, 16, 24, 26, 30 to 35, 40 and 42 under 35 USC 102(b) as being anticipated by Schrijver et al.

It is submitted that this reference is not citable prior art to applicants claims. As noted earlier, applicants claim priority under 35 USC 120 to US application No. 08/896,442 filed July 18, 1997. While the Schrijver et al reference does not recite a publication date, nevertheless, the footnote to page 1 indicates that the manuscript was not accepted for publication dated August 1, 1997, after applicants filing date.

Accordingly, it is submitted that claims 1, 2, 6, 15, 16, 24, 26, 30 to 35, 40 and 42 are not open rejection under 35 USC 102(b) as being anticipated by Schrijver et al.

The Examiner rejected claims 30 to 35 under 35 USC 102(b) as being anticipated by Stott et al.

It is noted that Stott et al reference is dated November 1997, which is less than one year prior to applicants filing date of July 18, 1997. Accordingly, it is believed that the rejection should have had under 35 USC 102(a).

While Stott et al describe construction of vectors comprising the RSV G gene, the vectors are vaccinia virus (VV) vectors and not plasmid vectors as suggested by the Examiner. Claim 30 has been amended to specify that the vector is a plasmid vector.

Having regard thereto, it is submitted that claims 30 to 35 can no longer be considered as being anticipated by Stott et al and hence the rejection thereof under 35 USC 102(b) should be withdrawn.

The Examiner rejected claims 1 to 2, 4 to 7, 10 to 12, 15 to 16, 18 to 21, 24 to 26, 30 to 38, 40 and 42 under 35 USC 103(a) as being unpatentable over Schrijver et al in view of Garcia and rejected claims 1 t o12, 15 to 26, 30 to 38, 40 and 42 under 35 USC 103(a) as being unpatentable over Schrijver et al in view of Garcia and further in view of Klein. As demonstrated above, Schrijver et al is not

available as prior art under any portion of 35 USC 102 and hence the rej ction should be withdrawn.

The Examiner rejected claims 15 to 28 and 30 to 39 under 35 USC 103(a) as being unpatentable over Roberts et al in further view of Herrman et al.

As the Examiner indicates, Roberts et al describes the complete nucleotide sequence of the RSV G protein. As the Examiner notes, Roberts does not employ the nucleotide sequence of the RSV G protein in a method of stimulating any immunogen in a host against RSV. In fact, Roberts et al is wholly silent with respect to this possibility and provides no expectation that the RSV G protein gene might be useful for such purpose.

As the Examiner further indicates, Herrman et al describe a control plasmid pCMVIA and the use of such plasmid containing a nucleotide sequence encoding a rotavirus polypeptide for DNA immunization.

While the Examiner asserts that it would have been obvious at the time the invention was made to combine the teachings of Roberts and Herrman to produce an immunogenic composition comprising an RSV G protein to produce an immune response in a mammal, applicants claims do not recite an immunogenic composition comprising an RSV G protein, but rather a plasmid vector containing a nucleotide sequence encoding the RSV G protein and generation of an immune response by administration of the plasmid vector to a host.

The Examiner considers that there is motivation to produce such a composition "since it would facilitate the expression of large quantities of the immunogen for future research purpose". It is not clear what that comment has to do with the subject matter of the claims rejected. Claims 15 to 28 are directed to a method of immunizing a host while claims 30 to 39 are directed to a method of using a gene to produce an immune response in a host. The invention is not concerned with *in vitro* production of RSV G protein, as the Examiner's comments appear to suggest.

In any event, as noted above, there is no suggestion in Roberts et al that the RSV G gene may be used in DNA immunization nor how this might be achieved. The Herrman et al reference is concerned specifically with DNA immunization using DNA ncoding a rotavirus antigen. There is no suggestion of the

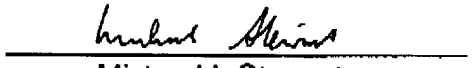
utilization of any other DNA encoding another antigen and, in particular, RSV G protein or fragment thereof as claimed.

Accordingly, it is submitted that Roberts et al and Herrman et al lack the motivation to effect the modifications suggested by the Examiner. Accordingly, it is submitted that claims 15 to 28 and 30 to 39 are patentable over the applied prior art and hence the rejection under 35 USC 103(a) as being unpatentable over Roberts et al and Herrman et al, should be withdrawn.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

It is believed that this application is now in condition for allowance and early and favourable consideration and allowance are respectfully solicited.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

On page 1, immediately following the title and before the first line of the specification, insert:

REFERENCE TO RELATED APPLICATIONS

This application is a United States National Phase filing under 35 USC 371 of PCT/CA98/00697 filed July 16, 1998 which is a continuation of US Patent application No. 08/896,442 filed July 18, 1997."

In the Claims:

Please cancel claims 10, 11, 12, 24, 25, 26, 35 to 38 and 43 to 48.

Please amend claims 1, 3, 13, 14, 15, 17, 27, 28, 30 and 40 as follows:

1. (Amended) An immunogenic composition for *in vivo* administration to a host for the generation in the host of protective antibodies to respiratory syncytial virus (RSV) protein comprising a plasmid vector which will not replicate when introduced into the host to be protected comprising:

a first nucleotide sequence encoding a RSV G protein or a RSV G protein fragment that generates antibodies that specifically react with RSV G protein,

an immediate early cytomegalovirus [a] promoter sequence operatively coupled to said first nucleotide sequence for expression of said RSV G protein or fragment thereof in the host, and

a second nucleotide sequence encoding the human cytomegalovirus Intron A located between said first nucleotide sequence and said promoter sequence to increase expression of said RSV G protein or fragment thereof *in vivo* from said vector in the host; [,] and

a pharmaceutically-acceptable carrier therefor.

3. (Amended) The composition of claim 2 wherein said first nucleotide sequence comprises the nucleotide sequence shown in Figure 2 (SEQ ID NO:1).

13.(Amended) The composition of claim 1 [12] wherein the plasmid vector is pXL5 as shown in Figure 4.

14. (Amended) The composition of claim 1 [12] wherein the plasmid vector is pXL6 as shown in Figure 5.

15. (Amended) A method of immunizing a host against disease caused by infection with respiratory syncytial virus (RSV), which comprises administering to said host an effective amount of a plasmid vector that will not replicate when introduced into the host to be protected comprising:

a first nucleotide sequence encoding a RSV G protein or a RSV G protein fragment that generates antibodies that specifically react with RSV G protein,

an immediate early cytomegalovirus [a] promoter sequence operatively coupled to said first nucleotide sequence for expression of said RSV G protein or fragment thereof in the host, and

a second nucleotide sequence encoding the human cytomegalovirus Intron A located between said first nucleotide sequence and said promoter sequence to increase expression of said RSV G protein or fragment thereof *in vivo* from said vector in the host.

17. (Amended) The method of claim 16 wherein said nucleotide sequence comprises the first nucleotide sequence shown in Figure 2 (SEQ ID NO:1).

27. (Amended) The method of claim 15 [26] wherein said plasmid vector is pXL5 as shown in Figure 4.

28. (Amended) The method of claim 15 [26] wherein said vector is pXL6 as shown in Figure 5.

30. (Amended) A method of using a gene encoding a respiratory syncytial virus (RSV) G protein or a RSV G protein fragment that generates antibodies that specifically react with RSV G protein, to produce an immune response in a host, which comprises:

isolating said gene,

operatively linking said gene to an immediate early cytomegalovirus promoter [at l ast one control] sequence to produce a plasmid vector that will not replicate when introduced into the host to be protected, said promoter [control] s quence directing expression of said RSV G protein

or fragment thereof when introduced into a host to produce an immune response to said RSV G protein or fragment thereof,

introducing into said vector an immunoprotection containing sequence encoding the human cytomegalovirus Intron A between said promoter sequence and said gene, and

introducing said vector into a host.

40. (Amended) A method of producing a vaccine for protection of a host against disease caused by infection with respiratory syncytial virus (RSV), which comprises:

isolating a first nucleotide sequence encoding a RSV G protein or a RSV G protein fragment that generates antibodies that specifically react with RSV G protein,

operatively linking said first nucleotide sequence to an immediate early cytomegalovirus promoter [at least one control] sequence to produce a plasmid vector that will not replicate when introduced into the host to be protected, the promoter [control] sequence directing expression of said RSV G protein or fragment thereof when introduced to a host to produce an immune response to said RSV G protein or fragment thereof,

operatively linking said first nucleotide sequence to a second nucleotide sequence encoding the human cytomegalovirus Intron A to increase expression of said RSV G protein or fragment thereof *in vivo* from the vector in the host, and

formulating said vector as a vaccine for *in vivo* administration to a host.